May 1, 2006

UNITED STATES OF AMERICA
NUCLEAR REGULATORY COMMISSION

BEFORE THE ATOMIC SAFETY AND LICENSING BOARD

In the Matter of	)	
	)	
ENTERGY NUCLEAR VERMONT YANKEE, LLC and ENTERGY NUCLEAR OPERATIONS, INC.	)	Docket No. 50-271-OLA
	)	ASLBP No. 04-832-02-OLA
	)	
(Vermont Yankee Nuclear Power Station)	)	

NRC STAFF'S ANSWER TO NEW ENGLAND COALITION'S
REQUEST FOR LEAVE TO FILE NEW CONTENTIONS

ATTACHMENT 1

Official Transcript of Proceedings ACRS-3331

NUCLEAR REGULATORY COMMISSION

Title: Advisory Committee on Reactor Safeguards
Subcommittee on Power Uprates

Docket Number: (not applicable)

Location: Brattleboro, Vermont

Date: Wednesday, November 16, 2005

Work Order No.: NRC-730 Pages 1-374

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UNITED STATES OF AMERICA

NUCLEAR REGULATORY COMMISSION

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ADVISORY COMMITTEE ON REACTOR SAFEGUARDS

SUBCOMMITTEE ON POWER UPRATES

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WEDNESDAY,

NOVEMBER 16, 2005

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The meeting came to order at 8:28 a.m. at the Quality Inn and Suites, in Brattleboro, Vermont. Dr. Richard Denning, Chairman, presiding.

PRESENT:

RICHARD DENNING, Ph. D., CHAIRMAN

MARIO BONACA, Ph. D., MEMBER

THOMAS KRESS, MEMBER

VICTOR RANSOM, Ph. D., MEMBER

JOHN SIEBER, MEMBER

GRAHAM WALLIS, Ph. D., MEMBER

Would someone object if while we're setting this up perhaps Mr. Blanch came and --

MR. BLANCH: No. I'm Mr. Blanch.

CHAIRMAN DENNING: Oh, you're Paul Blanch. I'm sorry. I forgot. What about Jane Newton? Would she be willing to speak at this time? Do you think we've got it all set?

MS. NEWTON: I'm Jane Newton.

CHAIRMAN DENNING: Hold on just a second. Do you think we've got it or -- in that case, why don't you just have a seat here for a moment? I think we're pretty close to having it set up. Sit that right there for a moment, and I'll introduce you.

MR. HOPPENFELD: My name is Joe Hoppenfeld. I was asked by the coalition to help them. I was asked by the New England Coalition to help them with the evaluation of the NRC SER.

By way of introduction, I have a Ph.D. degree from the University of California at UCLA. I have 40 years of experience in nuclear engineering, including private industry, AEC, DOE, and NRC. I published more than 15 papers in peer-reviewed journals. I own eight to ten patents. I can't remember how many.

The first time I made a presentation

power. What you want to know is what is going to happen to that dryer when the non-loads are generated when a steam line break, for example, breaks outside the containment.

In conclusion, the uncertainty is that two models are not sufficient to rely on it and the ascension to power does not really give you more confidence in the ability of predicting what happens to those vibrations and whether the dryer will fail or not.

Next, please. The recently discovered cracks, 62 cracks, and those that were discovered a year ago are significant. Now, if there are manufactured defects, that's fine. You can forget about that. And that's not that important.

But if those arose as a result of stresses which exceed design stresses, they are very, very significant because now when you increase the vibration of the amplitude of the vibration on that --

MEMBER WALLIS: I think that can be moved so that it fits the screen. It seems to have left from one side to the other. Can't you just --

CHAIRMAN DENNING: There is some incompatibility.

MEMBER WALLIS: Can't you just twist

MR. HOPPENFELD: We don't have experience with many dryer failures, especially catastrophic failures, but the experience at Quad Cities is a very important data point because they had a similar design. They increased the power by 20 percent, which increased the flow-induced vibrations. And they have experienced a severe fragmentation of the dryer and migration of the fragments to the steam line and to the core, top of the core.

MEMBER WALLIS: How do they get shed down onto the fuel?

MR. HOPPENFELD: I'm sorry?

MEMBER WALLIS: I can imagine them going down on the steam line, but how do they get to the fuel? I'm sorry. You claim that they get to the fuel and --

MR. HOPPENFELD: To the top of the core. They do not -- I didn't say the fuel -- I understand they came down on the top of the core, where the surges were. One or two were found there. Is that --

MEMBER WALLIS: Okay.

CHAIRMAN DENNING: One second. Please go to a mike.

MR. SHADIS: I'm sorry. If I could just interject, the event reports for the Quad Cities

incidents related that portions of the steam dryer had fallen on top of the reactor.

MEMBER WALLIS: Okay. Thank you.

MR. SHADIS: Yes.

MR. HOPPENFELD: I misspoke if I said entered the fuel. It came on the top. So you really should look at that thing as a near miss. Now, really the question is, what happens under, say, a LOCA accident like the MSIV, where the loads, the dynamic loads, which could cause excitation of the resonant frequency of the dryer and basically a catastrophic failure, on all of these chunks flying around in the team line? Are you going to have the MSIV when you need it? You've got two of them, but are you going to have them?

That issue is not being addressed. That is an important issue. You can't just forget about these components, even though the dryer is not a safety-related component. They must go somewhere.

MEMBER WALLIS: So what you are worried about is the failure to close the MSIV, rather than blockage of the line?

MR. HOPPENFELD: As a result of the dynamic loads, not your normal condition. Now, under normal condition, you probably increased the

probability. You increased the crack propagation. You've got have more.

Potentially they're going to be larger, but the issue is and the question is, what is going to happen on the dynamic loads? And that I have not seen addressed. And it is required to be addressed because it does affect the delta CFE.

Can I have the next slide? I don't believe, although that was viewed as a new phenomena, the failure of Quad Cities, I don't believe that, even -- I don't believe that after two years, our understanding has really significantly been improved or the SER does not reflect an increase in understanding. That statement was made by the industry two or three years ago. And I don't think in the last three years there has been a significant improvement in this area.

Next, please. Now, the requirements are very, very specific. If you are coming and requesting EPU or you are changing the tech specs, that's what you've got to do. And I don't see that in that SER that that was done, that these requirements are met.

I heard a lot of statements about conservatism, and I would like to talk about that a little bit more because maybe it's there, but it's not

clear. The calculation doesn't show that. Let me discuss that.

The main uncertainty with whether you are going to have enough pressure of the inlet to the pump, really there are a lot of uncertainties. The whole issue of containment pressure, flow, delta T max in the pool, they're all interrelated.

The equations are all coupled. So you really can't talk about one without talking about the other. And the issue here is what are the uncertainties. There are many. And because of complexity, you have to make a lot of assumptions.

But the one that I'm bothered by the most is where the pressure drops across the screen. The reason for that is because it relates to the interaction between the debris and the sludge and the crud and the corrosion product that you have in the coolant following the LOCA.

There is inconsistency in the report itself, in the SER evaluation. On one side, VY states that the EPU will not increase the source term for the debris. The EPU is not going to detect the amount of debris that you are going to have there. They state that.

On the other part of the report, they

said, "No. We've got another one. We're going to have more because we're going to have flow-induced corrosion. The conductivity is going to check, which means the pH is going to be changing."

You change the pH. You change the chemistry. And you change the mechanism of how the screen or not the screen itself, the fiber degree material that is going to be deposited on that screen, and then plug it up.

If you were sitting here and starting from scratch, you ask yourself, first thing, what kind of part was that? What is the distribution? There is nothing here. They are not even discussing that. But we are here from the NRC, we are here from VY. We have got plenty of conservatism. If there is one, just please show me where it is. It's just not there, just ain't there.

Now, when you see inconsistency within the report and you see that that has been reviewed, now, it's a very valid question how you even go and calculate your delta CDF when you can't even rely on the analysis?

The last subject or I believe it's the last subject -- and here I will be preaching to the choir. That has to do with the iodine release because

there are two or three ACRS meetings discussing this issue. And I think that we will be all in agreement here around this table that the NRC, not necessarily the NRC, that we don't understand the mechanism that governs that.

Well, I can say one thing. The fact that you are going to be running at a higher flow rate, you are going to -- the concentration of iodine in the coolant will be lower. It's also true that the concentration in the gap in the fuel is going to be higher or there will be more effusion products.

But what is not true, the fact that I am going to have more efficient products in the fuel and a lower concentration, they cancel each other. And I can go home and sleep well. That's just not true. It doesn't make any sense. There's no correlation between the initial concentration of the coolant of iodine and the amount of appearance that you have or I've looked for it. It's not there. So you can't make that statement.

So what the bottom line of all of this is that -- and this is not a safety issue in the sense like a core mill, but we do have requirements. And they are listed here, 10 CFR 15, which relates to the control room radiation of those is in 10 CFR across

the fence and GDC 19, requires you to meet those dust releases.

There is nowhere in this report besides the statement that we meet those. You ask yourself, how can they say they meet those dose releases where they have just started a new generic issue to resolve what the issues are.

So you have a generic GSI. I think it's 197 they just started to rely on these iodine releases, iodine spikes. And I'm not a chemist. So I don't really understand it. I do know I have seen the data and I didn't bring the curve, but you can -- I guess everybody around the table is familiar with it. I'm showing the order of magnitude or more increase in the iodine release as you lower the initial concentration. So if they lower the initial concentration, they're going to have increase.

In addition to this, I didn't see in the SER any references to increasing -- to using iodine, concurrent iodine. By doing that six seconds before that MSIV shut down, you're going to have a big pressure change. I haven't seen anything there.

Now, if you have orders of magnitude of safety there between what the -- I believe it's like 5 rem from the control room and I think it's 25 across

the fence. I don't remember the number, but if you have plenty of room there, well, that's fine. And I don't know whether it's from rewire, but I've seen it on similar reactors because it depends on the weather around here.

If you have plenty of leeway, then it's fine. You've got plenty of safety. But I think they're very, very close to the limit as it is. So when you neglect all of these mechanisms, there's a lot of uncertainty in there. Now, you know, it's up to the local cop who lets you drive 65 miles an hour. That's fine. But that's what this is.

To summarize, the main issue is the dryer.

CHAIRMAN DENNING: Thank you very much, Dr. Hoppenfeld.

(Applause.)

CHAIRMAN DENNING: I would like to have Jane Newton go next if she'll move up into this area right here.

Did you leave us a copy of your presentation or you can mail it to us? We've got it. I'm sorry.

MR. NEWTON: I think this is going to be very different because I am going to talk mostly about fears and the people who live around here. I'm going